AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

JOINT DOCTRINE

FOR MACEDONIAN AIR COMPONENT

by

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Disclaimer

Abstract

Armed forces of the Republic of Macedonia made significant progress since their establishment in 1992. In relatively short time span, they developed from practically obsolete Territorial Protection unit to a small and well – trained organization. Since 2003, Macedonian Armed Forces in general, and Macedonian Air Force in particular, were participants at numerous international live exercises where they gathered invaluable experience. In addition, Macedonian Army and Air Force carried out several true joint national level exercises, using gathered experience from international exercises and from international military cooperation. Cooperation with Macedonian police is advancing, resulting with many mutual operations, and including even successful real situation COIN operations.

Nevertheless, furnishing with modern equipment is lagging, and maintenance of existing equipment is associated with difficulties. There may be many reasons for that, including weak state of Macedonian economy, a situation that military cannot influence much. On the other hand, author of this paper feels that there are at least couples of other causes, causes that can be explained and can be shifted towards better.

One of the reasons is performance of Macedonian Armed Forces during the crisis in 2001, when they performed far from excellent. Therefore, one may consider that now, when the crisis is long gone, it is not reasonable to invest in armed forces with relatively low record of accomplishments. However, that performance must be analyzed and the analysis must provide answers into reason for less that excellent performance. With valid analysis of reasons and lessons learned armed forces can make a shift and improve their performance.

Second cause is the fact that since the establishment of the armed forces they were not successful in developing new or in adopting already existing document regarding the use of

armed forces. There are no basic documents for development of quality and adequate system of defense, no valid military doctrine. On of the means of communication between military and its civilian control is through doctrinal documents. Through doctrine military can communicate to its civilian leadership not only ways of its use in order to accomplish political and military objectives, but also means that the military needs in order to accomplish those objectives, including types of equipment, maintenance of equipment and requirements for military education and training.

This paper analyzes performance of Macedonian Air Force with respect to its combat employment in 2001. Further, focusing on organizational and operational issues, this paper draws some of the lessons that Macedonian Air Force must learn in order to improve its performance. Finally, this paper will try to implement the lessons learned, the specifics of the country, and the fresh concepts of the use of air power into a proposal for Joint Doctrine for Air Component in the ARM. This doctrine will attempt to communicate the proper ways of employment of Air Force, and Air Force requirements for equipment, maintenance, education and training to both civilian and military leadership.

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Finally, I dedicate this paper to all the ones that gave their lives so that we can live in a more peaceful world.

Contents

Abbreviations

AD Bde	Air Defense Brigade
AF Bde	Air Force Brigade
AFDD1	Air Force Doctrine Document 1
ARM	Macedonian Armed Forces (Armija na Republika Makedonija)
BAPSD	British Air and Space Power Doctrine
CAS	Close Air Support
CASEVAC	Casualty Evacuation
CFAD	Canadian Forces Aerospace Doctrine
DSC	Directorate for Security and Counterintelligence
DSRM	Defense Strategy of the Republic of Macedonia
FAC	Forward Air Controller
GS HQ	General Staff Headquarters
IAF	Israeli Air Force
IAFD	Israeli Air Force Doctrine
IDF	Israeli Defense Force
IR	Infra Red
ISR	Intelligence, Surveillance, Reconnaissance
JDAC	Joint Doctrine for Macedonian Air Component
JFC	Joint Force Commander
LNO	Liaison Officer
LZ	Landing Zone
MEDEVAC	Medical Evacuation
MIB	Medium Infantry Battalion
MK AF	Macedonian Air Force and Air Defense
MK Army	Macedonian Army
MK Police	Macedonian Police, Ministry of Interior Forces
MK SF	Macedonian Security Forces (ARM + MK Police)
MoD	Ministry of Defense
MSCI	Military Service for Security and Intelligence
NATINAIDS	NATO Integrated Air Defense System
NCCC	NATO Cooperation and Coordination Center
NCSD	National Concept for Security and Defense
NSS	National Security Strategy
OTG	Operational Tactical Group
PfP	Partnership for Peace
RMDL	Republic of Macedonia Defense Law
SAR	Search and Rescue
SERE	Survival Evasion Resistance Escape
SSC	Service for Security and Counterintelligence

TACP	Tactical Air Control Party
UAV	Unmanned Aerial Vehicles
UTM	Universal Transverse Mercator
WPD	White paper on Defense

A Study: Joint Doctrine for Macedonian Air Component

How can we compare this war with the wars we fight each day within ourselves, wars with our principles, desires, fears, passions, capabilities...?
On the other hand, would any war have a chance to occur without wars inside us?
For a Soldier to participate or to, ultimately, give away his life in a war, he first must win the War with himself, to defeat his fears, to suppress his principles, to say no to his desires, and to tame his passions.

Saso Mojsoski
Soldier
22 April 2008

In the early morning hours of 25 March 2001 four Macedonian Air Force and Air Defense (MK AF) Mi – 8MTV "Hip" helicopters, armed with six 57 mm rocket launchers each, were closing on the so – called Tetovsko Kale, insurgent's base on the hills above Tetovo, city in northwestern Macedonia.[1] They would soon attack insurgents positions in a support of an Operational Tactical Group 1 (OTG – 1), a Macedonian Security Forces group combined from police forces of Macedonian Ministry of Interior, Macedonian Police (MK Police) and forces of Macedonian Army (MK Army), advancing toward the same objective. For the first time in its history, the young Macedonian Air Force and Air Defense (MK AF), the Air Component of the Macedonian Armed Forces (ARM), will taste an actual combat experience. The mission was a successful one; MK Security Forces destroyed and expelled the insurgents out of "Tetovsko Kale." That was first of many combat and support missions that were flown by MK AF during the conflict driven year of 2001. Some of them were successful, some less successful. Common to all of them was that they all were in support of MK Army or MK Police ground forces. Other commonality among them was that missions were not joint in their nature, apart, maybe, from

the initial planning or idea. There was visible tactical and operational de conflict and separation between their operations, the crews carried out missions without radio contact with the troops on the ground, and there was visible sequencing of the operations. Most important of all, there was nothing even close in resemblance to an air campaign.

There are many views regarding the 2001 conflict in the Republic of Macedonia and eventual shortfalls of the Macedonian Security Forces. As Jane's Defense Review states, "One area of shortfall… is a failure to integrate military forces, police, and intelligence assets properly. At present, there is little cooperation between agencies, no common drills and procedures, and no common communications infrastructure. This resulted in repeated failures during the 2001 crisis."[2] This paper will analyze the performance of the MK AF during the 2001 conflict, regarding its use in the 2001 conflict, and discuss the proper integration of military, police, and intelligence assets. Next, it will try to identify the lessons learned from the performance during the 2001 conflict. Finally, this paper will try to implement the lessons learned, the country specifics, and the fresh concepts of the use of air power into a proposal for Joint Doctrine for Air Component in the ARM.

History of the Macedonian Air Force

Surely, the author being from "old" Europe, this paper will start with retrospect of the "early days."

In September 1991, Macedonian citizens voted for independence. Macedonian parliament declared independence on 25 January 1992. On 21 February 1992, Yugoslav armed forces withdrew from Macedonia. Since there was a bloody civil war in Yugoslavia since 1990, distinctive feature of the changeover to independence was that it was peaceful, contrary to what

was happening in other parts of former Yugoslavia. This feature will show its influence in the development of the armed forces and MK AF particularly.

The President of the Republic of Macedonia formed the armed forces of the Republic of Macedonia (both the MK Army and MK AF) on 15 April 1992. The MK AF first equipped itself with transport helicopters Mi-17 "Hip" in May 1994 and with light training prop planes Zlin 242L in 1996. Until the end of 2000, MK AF executes troop transport, CASEVAC, firefighting and training missions.

Republic of Macedonia made peaceful move to independence, became partner with NATO Partnership for peace (PfP) and proclaimed national strategy of equidistance, describing Macedonia as "Oasis of peace" and at peace with its neighbors. Nevertheless, the statement that "one may find the fog of peace even more difficult to penetrate the fog of war"[3] again proved to be correct. This strategy will have dire implications on the military capacities of the country. "Utopian thinking about defense was common in the early days of Macedonia, when in an understandable and healthy reaction to the militarism and xenophobia that was current elsewhere in ex-Yugoslavia, the IMRO dominated parliament in 1992 proposed at one point to abolish the armed forces completely. This did not happen, but only a token force existed for some time, with a large number of ex-JNA officers commanding a chaotic and muddled army… Equipment and training levels were minimal."[4] All of these characteristics resulted in decision brought by the Minister of defense in November 2000 to abolish the MK AF, being "too expensive to train and maintain regarding the prospects for peaceful future of the Republic." Private companies would lease the equipment, and MK AF members would find their future in airline companies. Nevertheless, the occurrences went in different directions. Through the winter of 2000 / 2001, there were more and more signs of a developing insurgency. Actually, in less than four month

after the decision to abolish it, MK AF would start to execute combat missions with newly acquired attack fixed and rotary wing aircraft.

Lessons Learned

Any army is an inert mechanism in its nature. It is very hard to move it in the desired direction. Once it starts to move, it is very hard to, eventually, change the direction. ARM at that time was not an exception. After the start of the insurgency, in January 2001, it was a slow process to reestablish and reequip the MK AF. Nevertheless, on 25 March 2001, MK AF entered the conflict with new equipment and with no procedures, doctrine, or previous experience about using its air power whatsoever. MK AF had to learn how to use its equipment and its capabilities first, had to do it while engaging in an armed conflict defending the country, and had to do it with a lack of experienced and trained personnel. The word "joint," even though maybe present in some MK AF members' minds, was only a misty and exotic word echoed from experiences from international exercises and conferences. There were no basic documents for development of quality and adequate system of defense, no valid military doctrine.[5]

This study will start with overview of personnel situation, the fabric of every organization. At the beginnings of the MK AF, all of the pilots in the service were graduates from the former Yugoslavian Air Force Academy, where they obtain their training as well. A normal process of decreasing of the numbers of personnel through retirement was ongoing. Of course, the ones that were retired were usually the most experienced persons in applying the military art and science in the field of air power. Therefore, there were large leaks in the terms of experience. On the other side, in the span of almost a decade there was no organized education or pilot training in the MK AF. Only a handful of pilots entered the service, on an occasional basis. First organized education and training of pilots for the service began in May

2001, only because of the ongoing conflict and enormous efforts on the side of the undermanned MK AF. This situation created deep problems regarding the level of overall experience and levels of tactical and operational knowledge about air power among the MK AF personnel. Furthermore, for almost 10 years all MK AF personnel operated only Mi-17 "Hip" transport helicopters (civilian version of Mi-8 "Hip", without armament installation) and light unarmed trainers Zlin 242L. Their primary missions were transport of troops and paratroopers, firefighting and occasional CASEVAC. On top of it, annual flight hours were low, due to maintenance shortfalls. Of course, there were no attempts to discuss employment of air power or to develop some kind of air power doctrine. There were no conditions to keep the personnel current for combat missions. It was inevitable that the proficiency levels and skills required to employ the air power were decreasing. With all the above – mentioned conditions combined, the MK AF was a far cry away from fast reaction, always ready and well trained force it should have been.

The equipment of the pre – 2001 MK AF consisted of Mi-17 "Hip" unarmed transport helicopters and Zlin 242L light unarmed trainers. Both of those types are unarmed and that is the reason that MK AF training was restricted to transport, firefighting and CASEVAC missions. This was, perhaps, another reason to neglect the need for maintaining and developing the necessary level of air power skills or the level of air mindedness.

Organizational Issues

In 2001, the ARM had a General Staff Headquarters (GS HQ) with subordinate MK Army Headquarters and MK AF Headquarters. MK AF Headquarters had the Air Force Brigade, with three squadrons, the Air Defense, and the Air Force Base under its command. As the hostilities developed in two geographically separated regions of Macedonia, GS HQ formed two

operational groups. Operational Tactical Group – 1 (OTG – 1) Area of Responsibility (AOR) was western part of the country, and OTG – 2 AOR was northern part of the country. GS HQ assigned MK Army units to OTG – 1 and 2 accordingly from available MK Army active and reserve forces. MK Police, both active and reserve component, acted as a separate set of units under the command of the Interior Minister. This organizational layout introduced difficulties in coordination between MK Army and MK Police forces, because there was no single commander and there was no unity of efforts among those units.[6] Regarding the coordination and effectiveness of MK Army and MK Police units Zoran Kusovac emphasize that "at Tetovo (in the OTG – 1 AOR) the government forces were virtually leaderless for a week. The MVR (MK Police) did quickly secure positions in the town but coordination with the ARM (MK Army) was virtually nonexistent. Although it was first on the scene, the MVR was told that for political reasons the army would lead the 'counter – terrorist' operation."[7] Level of coordination between MK Army and MK Police in OTG – 2 was equally insufficient for effective unified command and control.

Air Force units remained under MK AF command. For coordination and support purposes between MK AF and OTGs, MK AF appointed only one liaison officer (LNO) to each OTG accordingly. Since experienced personnel lacked in the MK AF, LNOs were usually junior officers. In reality, they had only an advisory role for the OTG Commanders. Because most of LNOs were junior officers, they were not included in the OTG planning process. Consequences of this organizational solution were several, and all of them had negative impact on the effectiveness of the coordination, support efforts, and overall air power application.

First, OTGs were the only military commands that, on order, had the authority to plan and execute the operational campaign and smaller tactical actions on the ground. LNOs, as

junior officers, lacked both authority and knowledge in order to take part in OTGs planning process. Therefore, they would merely advise OTG Commanders on possible use of MK AF assets, and they would pass the eventual request for support to MK AF HQ.

Second, request for MK AF support would go to GS HQ for approval. When the request involved sensitive targets or use of Su-25 ground attack planes, especially when bombing mission was requested, GS HQ would request permission of the President of the Republic of Macedonia as Commander – in – chief of the Armed Forces. Only after that, GS HQ would order the MK AF to execute the requested mission. At this instance, LNOs were valuable for clarification of specifics of the requests. It is understandable that this procedure was both complicated and time consuming.

Furthermore, OTGs used the same procedure for close air support (CAS) requests from ground units. Therefore, a CAS request would travel from the unit to OTG, then to GS HQ for their and, sometimes, President's approval, then to MK AF HQ, then to AF Brigade, and finally to the squadron for final planning and execution. Hence, the result was extreme lag between time of request and time of execution of CAS mission. Most of the requests were transferred by voice lines (telephone or radio), so this complicated procedure was open to errors and confusions during the transmission of coordinates, situation, and other mission elements.

> *On 27 May 2001, GS HQ ordered MK AF to carry on an attack on insurgents positions (small training camp with trenches and several tents) some 4 miles northeast of Tetovo, near Gjermo village, in the OTG – 1 AOR. Mission elements, coordinates and situation were transferred through phone line. A formation of Su-25"Frogfoot," call signs Volk 45 and 46, was scrambled. They arrived near the target and maneuvered into position for attack. After setting itself on an attack heading Volk 45, the leading airplane, reported that he cannot see any sign of training camp, trenches, or tents at designated target coordinates, and aborted the attack. His wingman could not find any signs of the insurgents either. They both remained for some time near the target, trying to find any sign of it. When their attempts proved unsuccessful, they both*

> *returned to base. During debriefing and reviewing of the mission elements with OTG – 1 LNO, it became clear that received coordinates were some 1½ miles away from the original coordinates. This was just one of several cases of incorrect transmission of target coordinates.*

Third, because only single junior officer served as LNO in each OTG, MK AF was effectively isolated from the planning process. Probably because MK AF lacked any serious equipment at the opening stages of the conflict, GS HQ never expected from the MK AF to produce plans for employment of air power. GS HQ continued to view MK AF only as supporting organization throughout the conflict and it never ordered MK AF to execute or plan for mission that was not in direct support of the ground units. On the other side, it is not clear if the MK AF HQ ever produced or proposed any plans for interdiction, reconnaissance, or battle damage assessment (BDA).

Several others, we may say organizational, issues effectively confused and complicated coordination and support efforts. One of them was an issue with incompatibility between the MK AF and MK Army tactical maps. For its training before the conflict and for operations during the conflict, MK AF used maps with smaller scale, usually 1:200000, or 1:100000, and, more importantly, with NATO standard UTM projection and grids. On the other side, MK Army units used maps with scales of 1:50000, or 1:25000 with latitude and longitude depiction. Target coordinates taken from one map should usually point to same target on all the maps. However, target coordinates depicted in latitude and longitude taken from a map with certain map projection, and then converted to UTM grid coordinates, will not point to the same target on a map with different map projection. It costs several aborted for MK AF to figure out the cause of the erroneously target coordinates.

One can agree that during the period when MK AF had only transport capabilities it was normal not to train forward air controllers (FACs). When, finally, MK AF received its combat

capabilities, during the conflict, there was no time to train them; hence, there were no FACs embedded in the MK Army units. Furthermore, air to ground communication was practically nonexistent. Ground radios, including those in APCs and tanks could not cover the air band, and radios in aircraft could not cover the ground band. This incompatibility further decreased the effectiveness of air power.

In the period before the conflict, there were several intelligence agencies in the Republic of Macedonia. There was the Directorate for Security and Counterintelligence (DSC), an Interior Ministry department, supervised by the Minister of Interior. Military Service for Security and Intelligence (MSSI) was under supervision of the Minister of Defense. ARM General Staff supervised the Service for Security and Counterintelligence (SSC), which had their members in each unit of ARM, similar to today's S – 2 section. Whatever their capabilities and coordination was couple of years before the conflict, there were several events that happened in the eve of the conflict that decreased their effectiveness. "The number of decisions that defy logic is unbelievable. It appears the decision to release old Yugoslav – era Secret Service files in the autumn of 2000 was so clumsily implemented that hundreds of records with details of active agents and collaborators were also released to the public, rendering those agents useless overnight and potentially endangering their lives. In addition, Macedonia's intelligence – gathering capacity has been eroded by the discovery of a major bugging scandal..."[8] Furthermore, ill – prepared and ill – qualified administration led to inferior organization of the intelligence agencies. "Therefore, intelligence services were divided, broken, unqualified, and unprepared to fulfill their role.[9] The nature by which the ruling coalition of ethnic parties operates further diminished the effectiveness of these services "by mutual understanding that there are exclusive domains of influence in which the other partner will not interfere. This in

practice means that officers of the Directorate for Security and Counterintelligence (Uprava za Bezbednost i Kontrarazuznavanje - UBK) can, and do, run their own ethnic networks without the other partner being aware of the details. This paralyses all meaningful fieldwork and allows for immense manipulation."[10] It seems logical that, under these circumstances, there was no enough confidence among these services for them to share helpful information. Consequently, OTGs, HQs and units received little or none info on enemy, enemy movement, or any other information vital for combat operations.

There were several attempts to facilitate this situation. Worth noting is the establishment of U.S. led NATO Cooperation and Coordination Center (NCCC). "A NATO Cooperation and Coordination Center has been established in Skopje that facilitates the exchange between NATO and the Ministry of Defense (Macedonian MoD) of operationally relevant information, and that handles coordination of military assistance. NATO mans a 24 – hour post within the MoD to carry out information exchanges."[11] U.S. Government contractor, "AirScan," an ISR Company, based at Petrovec AFB, flies over southern Kosovo and Northern Macedonia in order to provide live picture of southern Kosovo, necessary for U.S. Army units operations in Kosovo. U.S. Government offered to provide link of that picture to ARM Operations Center. Though it was available on an irregular basis and only in the ARM Operations Center, it provided valuable thorough the conflict. However, this support, while valuable in terms of international support for ARM operations, was less than perfect, especially when a British engineer and satellite enthusiast discovered that "European satellite TV viewers can watch live broadcasts of peacekeeping and anti-terrorist operations being conducted by US spy planes over the Balkans."[12]

In short, coordination between MK Army and MK Police, and their respective intelligence services was far from ideal. Their ineffectiveness accordingly influenced the operations on the ground, and in the air. There were further issues, mostly effectiveness wise, regarding the logistics and maintenance, particularly of the new equipment that was operated for the first time in MK Army and MK AF history, but it is not this paper intent to analyze those issues.

Operational Issues

Macedonian Air Force engagement in the 2001 conflict began as early as January 2001. Most of the missions assigned were routine, like resupply of isolated (due bad weather) border posts. Crews were quite familiar with procedures for these flights, even though there were not standing procedures. Since the meteorological service covered only the Skopje Airport area and since the weather in that area used to change rapidly, one of the "rules of the thumb" was to call the outpost commander, inquiring him about the weather, visibility, and wind conditions. One can assume that even the outpost commanders were familiar with those procedures and managed to return, more or less, correct answers regarding the meteorological situation. Since air transport was faster and much safer than ground transport, considering the mountainous character of northern part of Macedonia and the deteriorating force protection level, there was an increasing number of requests for troops (MK Army as well as MK Police troops) transport to old, as well as to newly set outposts.

> *On 17 March 2001, MK AF Mi-17"Hip" helicopter, call sign Mecka[13] 11, was executing a transport mission, carrying around 20 MK Police members in order to reinforce the police post at Popova Sapka, some 10 miles north of Tetovo. Mecka 11 intentions were to land at a vehicle parking area landing zone (LZ), near a recent police post. During the final approach and consequential transition from progressive flight to hover, Mecka 11 struck one of the flagpoles at the parking area with its main rotor. The helicopter plunged*

to the ground from around 15 feet and continued to slide and tumble down the valley until it came to the rest some 100 feet below. This was a tragic accident where the onboard flight mechanic, Mst.Sgt. Draganco Ilievski lost his life[14], and the rest of the crew and all of the MK Police members were badly injured. The reason for the crash was attributed to strong crosswind at the time of approach and landing, augmented with the high altitude of the LZ and near maximum load conditions.[15]

Mecka 11 was set to reinforce a newly established outpost, an outpost without phone or radio lines. Lack of current meteorological info was not the only cause of the accident, but it surely decreased Mecka 11 situational awareness. Since that tragic accident, MK AF transport missions continued with restrictions regarding the number of troops / cargo weight that they can carry to high altitude LZs and with orders to double check the weather conditions at the LZ prior to the mission. Number of MK AF transport missions increased through the rest of March and April, following the widening of the conflict to other areas in Macedonia. Apart from the above-mentioned fire support mission on "Tetovsko Kale," there were no other attempts in this period to employ the air power for some other missions or ways so it can influence the conflict.

At the beginning of May 2001 MK AF received an order to execute a reconnaissance mission of insurgents' positions near Skopska Crna Gora Mountain. This was the first and only reconnaissance mission performed by aircraft during the conflict. Military intelligence officers

On 12 May 2001, MK AF 101st Squadron, equipped with Zlin 242L light trainers, was ordered to execute a reconnaissance of some of the insurgents positions. Zlin 242L light trainer is not armored and its speed is very low, the crew was ordered to carry ballistic vests. Since the vests would not protect the crew from projectiles coming from beneath the plane, and because of the weight limitations that they would impose on the plane, the crew decided not to carry a vest. The actual mission took place with a MSSI officer on board, "armed" with several digital cameras and camcorders. Because of the plane wings configuration, for better reconnaissance of some of the positions the airplane was flown inverted. Fortunately, the crew successfully returned to the base. Unfortunately, first results of this mission did not reach operational units and planning HQs until month and a half after the mission.[16]

took the reconnaissance photos, and the results reached operational troops and headquarters almost month and a half after the mission. Therefore, employment of air power as an ISR asset was extremely rare, only once, and the intelligence community was slow in providing the final product to the users.

In May 2001, MK AF received its first combat aircrafts. Ten Mi-24V "Hind" helicopter gunships and four Su-25 "Frogfoot" ground attack airplanes landed at Petrovec, AFB. This aircrafts presented first real combat potential for MK AF. They had the potential to project all aspects of air power through their employment in the conflict. Unfortunately, MK AF will not be successful in fully utilizing its newly achieved capabilities.

MK AF employed the Mi-24 gunships as early as 5 May 2001, in operations around Vaksince, some 4 miles north of Kumanovo, in support of OTG – 2 troops.[17] Those were mostly preplanned ground strikes on enemy positions. There were no attempts to execute any ISR missions for clarification and better determination of targets. Furthermore, no BDA followed the ground attack missions. There were several close air support (CAS) missions in support of the ground troops on 8 May 2001, around Slupcane, 5 miles west of Kumanovo.[18] Main characteristics of those CAS missions were the considerable lag between the time of call and the time of strike, and no radio contacts with the troops on the ground in order to guide or control the air attacks. Crews would arrive at the target area and they would fire on targets of opportunity, or, if they could not find the enemy, they would fire on preplanned targets. OTG – 2 used identical tactics to employ MK AF between 25 – 29 May 2001, in support MK Army and MK Police troops for the duration of Operation "Vaksince," an operation designed to clear that area of insurgents.[19] Almost all unit commanders involved in the operation agreed, "Airpower, even

though far away from providing an effective and timely support, provides an overwhelming morale support for the troops on the ground."[20]

MK AF executed various troops and supplies transport missions during the whole period of the conflict. Since MK AF had transport capabilities since its establishment, ground commanders were quite familiar with ways to use those capabilities. However, since they were supported by those capabilities in peacetime, they continued to use them under peacetime principles. Furthermore, OTG – 1 and 2 used MK AF transport capabilities in support of their

> *Tetovo Barracks were built in 1960s, at that time well outside city limits. During 40+ years town developed and in 2001 Tetovo Barracks were in the middle of one of the more dense populated suburbs. When helicopter support was requested, barracks Commander would usually request the helicopter to use the northern most LZ, because it was closest to the warehouse and that would simplify supply loading. In the same time, referred LZ was close to the barracks edge and brings the helicopter to an uncomfortable proximity of the civilian and possible unfriendly, structures outside the barracks. Fortunately, there were no incidents since the beginning of the conflict.*
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> *On 28 May 2001 MK AF Mi – 17 "Hip" transport helicopter, call sign Mecka 32, was scheduled to land at Tetovo Barrack in order to transport logistics supplies from Tetovo Barracks to Popova Sapka MK Army outpost. MK AF LNO to OTG – 1 for that period, captain Slobodan Ivanov, completed necessary coordination with MK AF HQ and waited for helicopter arrival. However, while the helicopter was inbound from Petrovec AFB to Tetovo Barracks, insurgents suddenly launched fierce mortar and small arms attack on the barracks. Captain Ivanov tried to abort the flight, but MK AF HQ had no way to contact the helicopter in flight. Having only short range handheld air band radio with himself, Captain Ivanov had to exit outside of the protected OTG – 1 command post in order to try to establish contact with Mecka 32 before he attempt to land at the endangered LZ. In the process, Captain Ivanov was almost killed by a nearby mortar shell explosion, but he succeed in advising Mecka 32 to abort landing and thereby prevented an even bigger disaster.[21]*

respective AORs in a decentralized manner almost for the whole duration of the conflict. There were no attempts to combine the transports or supplies between two relatively small AORs and

to utilize the cargo capacities and helicopter flight times. OTG and barracks Commanders used familiar peacetime procedures for designation of LZ, without consideration to the proximity of, possibly insurgent occupied objects. Loading and offloading of the cargo was painfully slow, without palletizing the cargo. LZs were poorly secured, only within the boundaries of the barracks, without consideration of widening of the protected area. MK Police was the third party that added confusion with separate requests for helicopter transport support. Since there were practically no exercises in order to familiarize the troops with procedures for helicopter transport, they often endangered themselves because they would embark the helicopter with loaded weapons, pointing it upwards, toward the engines. Disembarking procedures were giving the crews even more headaches, since the troops would sometimes proceed toward the rear of the helicopter, passing dangerously close to the tail rotor. All of these issues were addressed during the conflict, and there was slow, but apparent improvement. After the incident with Mecka 32, ARM HQ closed Tetovo Barracks LZs. OTG – 1 established a far more secured LZ at nearby Jerebino warehouse for supplies transport. Troops inbound any AOR would go to Petrovec AFB first. There was time for crew chiefs to give them short procedures familiarization briefing before boarding the helicopter.

Apart from previously mentioned intentional reconnaissance mission, MK AF stumbled upon yet another chance where it could push for full time ISR mission. One of the light training

On 7 June 2001, Zlin 242L light trainer, call sign Kolibri[22] 16 was performing a night training flight in a flight zone northeast of Petrovec AFB. The night was clear, with full moon, and the visibility provides an excellent view on all surrounding terrain, including the Crna Gora Mountain, just above Aracinovo village, and further to the north. During the flight, Kolibri 16 crew noticed numerous vehicle like moving lights near mountain hilltop, heading towards Aracinovo. Kolibri 16 reported the sighting to the MK AF Operations Center (OC), suspecting that the lights represented an insurgents convoy of vehicles trying to deploy troops and resupply Aracinovo, and requested permission to

get closer and further investigate the sighting. Considering Aracinovo as a dangerous zone for flying, MK AF OC ordered them to stay away from the village.[23]

airplanes, while on a regular night training mission discovered a convoy of vehicles headed toward one of the villages in the troubled area. Since that village became another insurgent stronghold just couple of days after the occurrence, one can be confident that the observed convoy was an insurgent one. There were many observations that prove that insurgents had relative freedom of movement in their rear areas, particularly the areas where Kosovo was in the rear. Couple of days after the successfully finished mission at Tetovsko Kale, insurgent movement was observed in Lipkovo, some 50 miles away. Throughout April and May, there were sightings, made from the ground, and evidences that insurgents moved freely in the northern part of the country and they freely moved in and out of Kosovo.[24] Insurgents, traveling on foot, and transporting the supplies on horsebacks, used routes that were mostly impassable for regular MK Army units. They used these routes for deployment of fresh units, and resupplying with food, munitions, and weapons.[25] All areas where insurgents mount their activities had mountains in their backgrounds. Therefore, when pushed away from the village by MK SF, they would retreat back into the hills above the villages where MK SF could not effectively follow them, either because the terrain was impassable for vehicles, or because an ever – present risk of mines. After regroup and resupply, insurgent groups would move to another village to mount their actions. During this phase, insurgents groups were probably vulnerable to interdiction. In addition, their resupply convoys were vulnerable to interdiction during the periods of MK Army actions against them. Insurgents were aware of their vulnerabilities and their convoys would mostly travel by night.[26] At that time, MK AF had neither night ISR capabilities nor effective night attack capabilities. Nevertheless, according to some analysts, "it would be logical if MK

AF units were used more and for wider spectrum of operations."[27] Furthermore, results of regular ISR missions would most probably trigger widening of that mission into armed reconnaissance and, eventually, interdiction missions, therefore effectively denying freedom of movement and resupplying to insurgents. Unfortunately, ARM leadership failed to recognize the potential of ISR missions, therefore denying their benefits to MK SF.

Operation "Aracinovo"

Operation "Aracinovo" was the fiercest and one of the longest operations during the 2001 conflict. It was also one of a few operations where MK SF used a truly combined arms approach. Beginnings of the operation can be traced from 8 June 2001, although major combat operations lasted from 22 until 26 June 2001. ARM used MK AF extensively during this operation, mostly in preplanned CAS missions. Unfortunately, most of the previously mentioned issues, like difficulties in transmission of target coordinates, uncoordinated request and approval procedures, and lag between request and action for CAS missions, continued to hamper the performance of the MK AF. This operation, extensively urban in its nature, brought forward the

> On 22 June 2001, Tactical Operation Center (TOC), situated in a hotel "Bellevue" near the village, identified a house at the outskirts of the village, and confirmed it to be an insurgents stronghold. Political and military leadership wanted to eliminate collateral damage and civilian casualties, so they restricted the use of Su – 25 "Frogfoot" attack planes. Even though the plane has precision guided munitions (PGM) capability, there was fear that the 500lb guided bomb will cause extensive collateral damage. Therefore, pair of Mi – 24 "Hind" gunships was ordered to attack and destroy the house, confirmed to be an insurgent's stronghold. Sekira[28] 63 and Sekira 67 approached the house from south, just above the "Bellevue" hotel and fired their 57mm rockets at the house. Because of the nature of helicopter, vibrations, slow speed and low angle of attack, helicopter rocket fire produces wide coverage and broad dissipation of impact points. Even so, both Sekira 63 and Sekira 67 scored multiply direct hits on the stronghold. Nevertheless, BDA provided from the TOC confirmed that the stronghold was merely damaged by those multiply hits, and that insurgents activities were only temporary delayed.

> *Both the platform and the munitions were inadequate for the requested mission of destroying the assigned target.*

not so much the lack of guided munitions, but crews inexperience in operating with the newly acquired equipment, that get in the way of effective use of MK AF. The example above clearly shows that, in order to provide viable and usable military options to both political and military leadership, MK AF has to be equipped with modern equipment. Technology in the shape of PGMs and PGM capable aircrafts can provide just one – half of those options. Well – trained and combat capable crews can offer the other half of the options. Therefore, both current technology and advanced training are important part in the equation of any Air Force effectiveness. Unfortunately, combat operations in the Republic of Macedonia, particularly urban combat operations, proved once again that even though a country can quickly provide the equipment, training and improving of crew's combat readiness take a long, often valuable, time. It is most effective to keep the crews in as high combat readiness as possible, therefore minimizing, or even eliminating, the time necessary for crews to assume combat operations. Furthermore, it is necessary to provide or to produce a document such as Joint Munitions Effectiveness Manual, both in order to avoid mistakes in linking the mission requirements with the most effective type of munitions, and to minimize collateral damage.

Conclusion

One can state many additional organizational and operational issues that hampered the efforts of ARM soldiers during that troublesome 2001 year. It was not intention of this paper to dwell deep into smaller tactical details that were not done in the best spirit of war fighting. Even the issues presented above strongly support the statement that Macedonian Security Forces failed to integrate military forces, police, and intelligence assets in a way that could ensure success on the battlefield[29]. Initial failures at the beginning of the conflict can be credited to the fact that

ARM lacked proper equipment to counter the insurgent's actions. However, even when the equipment was obtained, ARM in general, and MK AF in particular never employed it in an effective way, in accordance to the doctrinal recommendations for employment of airpower.

Furthermore, elements of the security structure were developing in a kind of isolation from each other; there were no common or joint exercises, no joint tactics, no common communication infrastructure or procedures. All of this resulted in many failures during the 2001 crisis.

As stated above, there were many reasons why Macedonian Security Forces performed below average. Indeed, less than 9 years passed since the Republic of Macedonia gained its independence. During that time, Republic of Macedonia developed its state administration, organized and equipped its system of defense. However, it apparently was not successful in developing new or in adopting some existing doctrinal document regarding the use of its security forces. There were no basic documents for development of quality and adequate system of defense, no valid military doctrine.[30]

This paper recognizes that Republic of Macedonia needs to develop a valid military doctrine. Lacking the knowledge and experience to propose an overall military doctrine, this paper is proposing a draft for Joint Doctrine for Air Component in the ARM, presented in Appendix A below. This is just a modest endeavor to implement the lessons learned from the 2001 crisis, the country specifics and the fresh concepts of the use of airpower.

Notes

[1] http://star.vest.com.mk/default.asp?id=3394&idg=1&idb=216&rubrika=Makedonija

[2] http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/sent/balksu/maces100.htm@current&pageSelected=allJanes&keyword=ARM&backPath=http://search.janes.com/Search&Prod_Name=BALK&

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[4] James Pettifer. *Former Yugoslav Macedonia – The Shades Of Night?*, The Conflict Studies Research Centre, July 2001, p. 7.

[5] Arsovski, Mitre, Stojan Kuzev, and Risto Damjanovski. *The War in Macedonia 2001*, Skopje: Matica Makedonska, 2006, p. 65.

[6] http://star.vest.com.mk/default.asp?id=9851&idg=1&idb=279&rubrika=Makedonija

[7] Zoran Kusovac. *Macedonia Teeters on The Brink of Disaster*, Jane's Intelligence Review, June 1, 2001, available at: http://www.globalpolicy.org/component/content/article/192/38612.html

[8] Zoran Kusovac. *Macedonia Teeters on The Brink of Disaster*, Jane's Intelligence Review, June 1, 2001, available at: http://www.globalpolicy.org/component/content/article/192/38612.html

[9] Arsovski, Mitre, Stojan Kuzev, and Risto Damjanovski. *The War in Macedonia 2001*, Skopje: Matica Makedonska, 2006, p. 113 – 114.

[10] Zoran Kusovac. *Macedonia Teeters on The Brink of Disaster*, Jane's Intelligence Review, June 1, 2001, available at: http://www.globalpolicy.org/component/content/article/192/38612.html

[11] S. Hrg. 107-68 -- The Crisis in Macedonia and U.S. Engagement in the Balkans, June 13, 2001, p. 12, available at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_senate_hearings&docid=f:73349.pdf

[12] http://www.guardian.co.uk/media/2002/jun/13/terrorismandthemedia.broadcasting

[13] Macedonian for Bear.

[14] http://www.acig.org/artman/publish/article_384.shtml

[15] Interview with Col (Ret.) Goran Zdravkovski, Mecka 11 pilot.

[16] Interview with Kolibri 43 crew.

[17] http://star.vest.com.mk/default.asp?id=7731&idg=1&idb=247&rubrika=Makedonija

[18] http://star.vest.com.mk/default.asp?id=7845&idg=1&idb=249&rubrika=Makedonija

[19] http://star.vest.com.mk/default.asp?id=8880&idg=1&idb=264&rubrika=Makedonija

[20] Arsovski, Mitre, Stojan Kuzev, and Risto Damjanovski. *The War in Macedonia 2001*, Skopje: Matica Makedonska, 2006, p. 262.

[21] Ivanov, Slobodan, Capt. Interview by author, February 10, 2009.

[22] Macedonian for hummingbird.

[23] Interview with Kolibri 16 crew.

[24] Arsovski, Mitre, Stojan Kuzev, and Risto Damjanovski. *The War in Macedonia 2001*, Skopje: Matica Makedonska, 2006, p. 243.

[25] http://star.vest.com.mk/default.asp?id=8260&idg=1&idb=255&rubrika=Makedonija

[26] Arsovski, Mitre, Stojan Kuzev, and Risto Damjanovski. *The War in Macedonia 2001*, Skopje: Matica Makedonska, 2006, p. 266.

[27] Ibid, p. 269.

[28] Macedonian for Axe.

[29] http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/sent/balksu/maces100.htm@current&pageSelected=allJanes&keyword=ARM&backPath=http://search.janes.com/Search&Prod_Name=BALK&

[30] Arsovski, Mitre, Stojan Kuzev, and Risto Damjanovski. *The War in Macedonia 2001*, Skopje: Matica Makedonska, 2006, p. 65.

A Draft: Joint Doctrine for Macedonian Air Component

Joint doctrine basics

> *At the very heart of warfare lies doctrine. It represents the central beliefs for waging war in order to achieve victory. Doctrine is of the mind, a network of faith and knowledge reinforced by experience which lays the pattern for the utilization of men, equipment, and tactics. It is the building material for strategy. It is fundamental to sound judgment.*
>
> <div align="right">

General Curtis E. LeMay

</div>

Disclaimer

In the following part, this paper will try to present a proposal for Joint Doctrine for Macedonian Air Component (JDAC) in the Joint Operational Command of the Army of the Republic of Macedonia.

At the beginning, author would like to state that this JDAC proposal is in no sense a finished work, and that there will be many modifications and fresh inputs before, and if, this proposal became a viable JDAC. This paper is just as an initial event, an effort to get the things going, that may result in producing a valid JDAC, following the proper phases that worked well for other Air Forces.

> *The first phase is assembling the objective information required from a wide variety of sources. The second phase is the formulation phase during which the doctrinal generalizations are developed. This phase also includes a trial balloon stage where draft statements are circulated to a broad audience in order to secure feedback. After evaluating the feedback and rethinking the proposed doctrine, we are ready for the final phase-dissemination….Doctrine must evolve out of the experience of all.*[31]

Sources

Next, author of this paper acknowledge that most of air power principles are well known, and that there are many air power doctrines covering literally every aspect of the use of air power. Therefore, it is almost impossible to come across an undiscovered principle or doctrinal issue regarding use of airpower. On the other hand, numerous eminent and, more or less, proven air power doctrines already exist, and are available as advisory material. Therefore, this JDAC proposal will rely on existing air power doctrines as an advisory, and guidance sources, mostly from the Canadian Forces Aerospace Doctrine (CFAD), British Air and Space Power Doctrine (BASPD), and Israel Air Force Doctrine (IAFD). Certainly, this paper will make an effort to adopt this advisory and guidance sources in accordance with National Concept for Security and Defense of the republic of Macedonia, Defense Strategy of the Republic of Macedonia, and country and regional specific.

Definition and Levels of Doctrine

In order to facilitate further development of this proposal for JDAC, this paper will provide definitions, and levels of doctrine explanation. Military doctrine is in the base of every military operation providing commanders with guidance and allowing individuals to think clearly in the chaos of conflict.[32] NATO defines doctrine as "Fundamental principles by which military forces guide their actions in support of objectives." CFAD states that doctrine represents knowledge gained from experience and, although it is authoritative, it requires judgment in application. Departures from doctrine may indicate that the doctrine itself requires amendment. Therefore, doctrine is not static; it evolves in response to experience, new technologies, and a multitude of other factors. In this way, doctrine must be continuously revalidated and never be considered as dogma.[33]

> *Doctrine is an officially approved teaching based on accumulated experience. Numerous recorded instances have led to a generalization. To generalize is to infer inductively a common pattern from repeated experiences that have produced the same or similar results. In World War I, as more and more pilots tried attacking from above, astern, and out of the sun, they found the probability of making a kill tended to rise rapidly. On the basis of such experiences, reinforced by repetition, those who instructed neophyte pilots generalized this common pattern of attack into informal doctrine. Eventually, this informal doctrine appeared in manuals bearing the official imprimatur as formal doctrine.[34]*

Furthermore, it is important to state that there are three levels of doctrine. At the highest level is the basic or strategic doctrine, which "states the most fundamental and enduring beliefs that describe and guide the proper use, presentation, and organization of air and space forces in military action. It describes the "elemental properties" of air and space power and provides the airman's perspective."[35] Basic doctrine very broadly describes ways to organize, equip, train, and employ the air force.

Operational doctrine is next level of doctrine. According to Unites States Air Force Doctrine Document 1 (AFDD1) it applies the principles of basic doctrine to military actions, and describes how operations centers and other command and control posts function. This level of doctrine also describes the objectives and capabilities of the air force.

Tactical doctrine, the lowest level doctrine, deals with tactical employment of the air force resources, how it will be used to fight particular enemy units, and how will it be employed and for which particular tactical missions. It is understandable that this part of doctrine is one that is most affected by advancements in technology and that, therefore, is most liable to updates. AFDD1 describes this level of doctrine as specific tactics, techniques, and procedures (TTP). TTPs depends upon equipment, ammunition, type of mission, whether we employ our forces in a regular or irregular warfare, etc.

Base for Joint Doctrine for Macedonian Air Component

> *Policy is guidance that is directive or instructive, stating what is to be accomplished. It reflects a conscious choice to pursue certain avenues and not others. Thus, while doctrine is held to be relatively enduring, policy is more mutable. Policies may change due to changes in national leadership, political considerations, or for fiscal reasons. At the national level, policy may be expressed in such broad vehicles as the National Security Strategy (NSS).*
>
> <div align="right">*Air Force Doctrine Document 1*</div>

In order to produce a viable doctrine, we should have some sort of guidance. First, there is national policy, as the highest guidance, or directive that describes what is that the nation wants to accomplish. Republic of Macedonia national policy regarding security and defense is stated in the National Concept for Security and Defense (NCSD), 11 Jun 2003. It is based on the estimates regarding the international environment in which the Republic of Macedonia exists, and threats to its security. Main national interest of the Republic of Macedonia is to preserve and improve its state identity, and to protect its independence and territorial integrity.[36] NCSD estimates are that there is no risk of conventional war in Europe, and that risks and threats for the Republic of Macedonia security includes manifestations of extreme nationalism, racial and religious intolerance, international terrorism, organized crime, blockade of energy lines of communication, and elementary disasters.

Next, we should have a strategy that "defines how operations will be conducted to accomplish national policy objectives. Strategy originates in policy and addresses broad objectives and the plans for achieving them. It is a plan of action, a matching of means to ends."[37] In October 2005, Republic of Macedonia political leadership issued a "White Paper on Defense" (WPD)[38] where it provides guidance for the role of Macedonian Armed Forces, their basic strategy and planned capabilities, and the organization of ARM. WPD states that Republic of Macedonia cannot respond alone to all of the mentioned security challenges. The

development of a domestic security system integrated into collective security structures is a strategic investment for the State and important contribution to the Euro – Atlantic security area.[39] Furthermore, the WPD set the aims of defense as protection of the country's territorial integrity and independence, contribution to development of a multi – ethnic society, seeking integration into Euro – Atlantic structures, maintain internal and regional stability, protect and promote democracy, human rights and the rule of law. WPD states that the mission of the ARM is to defend the homeland, to be able to execute peace support and humanitarian missions, and to be able to declare military units for NATO, EU, or UN led operations, in order to respond to regional conflicts or crisis. In the part of capabilities, WPD prescribes that ARM must possess wide spectrum of capabilities, increased flexibility and capabilities for rapid deployment, to include deployments in support of stability of Euro – Atlantic region.

On 1 March 2010, President of the Republic of Macedonia issued the "Defense Strategy of the Republic of Macedonia" (DSRM).[40] This document provides guidelines for the development and functioning of the defense system of the Republic of Macedonia until 2015. The Strategy, based on the assessment of future security threats, risks and challenges to national security, determines the strategic defense missions and guidelines for attaining them, provides vision for development of the capacities of the Ministry of Defense (MoD) and the Armed Forces of the Republic of Macedonia (ARM), identifies the required resources for maintenance and development of the defense system and provides guidelines for political and military integration into NATO.[41]

Finally, based on the policy directive and strategy guidance, we can continue to the final part of this paper, the JDAC proposal, a proposal for military doctrine trying to present the political and military leaders the ways to accomplish the military goals.

Proposal for Joint Doctrine for Macedonian Air Component

Introduction

From the previous parts, we can conclude that the role of the MK AF, the Air Component in the Joint Operational Command, is to defend the Republic of Macedonia, and to protect its interest using air power. In order to effectively achieve those stated goals, MK AF must be aware of its strengths, weaknesses, and limitations, distinctive to air power.

> *Air power exploits the third dimension. Because air has little resistance and aircraft can route directly, air vehicles are invariably faster and generally have greater reach than naval vessels or land vehicles, while elevation is inherent to air operations. The core characteristics of air power are therefore speed, reach, and height.*
>
> *British Air and Space Doctrine*

Air power strengths are speed, allowing for quick employment of military power. Speed reduces risk of friendly casualties and increases survivability. Seventy percent of the world's surface is covered by water, but all of it is covered by air, providing air power with unrivalled reach, usually unimpeded by terrain. This enables distant or isolated targets to be attacked and potential restrictions to be circumvented.[42] Height enables airmen to observe and influence activities using the three dimensional approach, therefore increasing effectiveness and survivability.

Synergistic effects of air power strengths provides for flexibility, a characteristic enabled by the capability of air assets to move quickly in order to focus on a specified target and to react quickly on any change of mission. All of above provides for concentration, the ability to quickly concentrate military force in time and space, when and where is required.[43] Availability of precision guided munitions can increase the concentration strength while decreasing the numbers of air assets.

Air power limitations include impermanence, air assets cannot stay over desired area forever. Air power has limited payload capabilities, but it can accomplish transport mission faster and safer, particularly in areas where geography features, and undeveloped road infrastructure hinders surface transport, like in Republic of Macedonia. Air power is fragile, more sensitive to battle damage than surface vehicles. However, exploitation of speed, maneuverability, and height can mitigate this weakness. MK AF helicopter units, lacking speed and maneuverability can mitigate this weakness by specializing for night operations. Air power is definitely a costly affair. Effectiveness of air power depends on the advanced technology. Inevitably, this comes at a cost, but this must be balanced against the multiple and adaptive capabilities delivered, while history demonstrates that even slight technical shortfalls in the air environment are punished very heavily and usually with devastating consequences.[44] Moreover, deployment of air power can effectively replace options of deployment of land forces, with financial burdens and troops casualties connected with such a deployment. Air power limitation is weather, and it is beyond human control. Only way of mitigating the limitations of weather is by utilizing advanced technologies that provide all weather, day and night flying capabilities.

Air logistics is the key air power element that enables full utilization of air power. The challenge for air logisticians is to deliver timely and assured support to enhance freedom of maneuver through a combination of innovative solutions, supported by established procedures.[45] In addition to general logistics principles, air logistics is also guided by its typical principles. They are responsiveness, ability to provide support at the right time and place; attainability, ability to establish at least minimum level of support; sustainability, ability to provide necessary level of serviceable air assets and equipment; and survivability, ability to counter threats to logistics system and provide alternate sources of logistics support.

Principles of war, basic war fighting principles that relates equally to air power, provides further guidance on how to most effectively employ air power.

> *Throughout the history of conflict, military leaders have noted certain principles that tended to produce military victory. From ancient times to today, certain "truths" of warfare have emerged. Known as the principles of war, they are "those aspects of warfare that are universally true and relevant."*
> *Air Force Doctrine Document 1*

Since there is an abundant literature that explains principles of war, this paper will just cite them from available literature. Basic principles of war, as stated in Air Force Doctrine Document 1, are unity of command, objective, offensive, mass, maneuver, economy of force, security, surprise, and simplicity – they are guidelines that commanders can use to form and select courses of action and concepts of operation.[46] Principles of war, as stated in British Air and Space Doctrine are selection and maintenance of aim, maintenance of morale, offensive action, security, surprise, concentration of force, economy of effort, flexibility, cooperation, and sustainability.[47] Cited documents provide well – detailed explanation of above principles.

Tenets of air power provide further guidance that enables effective employment of air power. This paper will consider the tenets of airpower and their application in MK AF operations.

> *The application of air and space power is refined by several fundamental guiding truths. These truths are known as tenets. They reflect not only the unique historical and doctrinal evolution of airpower, but also the specific current understanding of the nature of air and space power. The tenets of air and space power complement the principles of war. While the principles of war provide general guidance on the application of military forces, the tenets provide more specific considerations for air and space forces. They reflect the specific lessons of air and space operations over history.*
> *Air Force Doctrine Document 1*

Air power should be centrally controlled and decentrally executed. Air resources are very scarce, and their use is not effective if they are divided among different OTG commanders, as it was the case in the lessons learned. Air power is effective only if a single air commander, with an extensive insight into strategic and operational situation, commands it. Capable and air minded tactical air commanders enable effective decentralized execution of air power missions, thus providing tactical flexibility and situational responsiveness to the tactical environment.

Air power is flexible and versatile. Flexibility is the key to air power. Air power can shift its focus in an instant, at one moment destroying enemy strong points, and providing humanitarian effort in another. In the support of land forces role, it provides land component commander with flexible support to his mission. Air power can execute ISR mission that will provide intelligence necessary for subsequent or simultaneous ground attack mission, and it can provide MEDEVAC support in the same time. Furthermore, using parallel operations concept, air power can execute several missions simultaneously.

Air power produces synergistic effects. Air power can strike enemy frontline forces. It can cut opponent's lines of communication. Speed and reach enables air power to avoid frontline defense and to hit the enemy rear, striking adversary's vulnerabilities. Summary effect of these precise and coordinated actions can swiftly coerce the enemy to comply with our demands, avoiding long, and wasteful war of attrition.

Air power offers a unique form of persistence. Air power does not need to occupy a checkpoint in order to secure a region or deny adversary freedom of movement. Through the spectrum of its capabilities, air power can effectively replace or increase the persistence that land forces add to the fight.

Air power must achieve concentration of purpose. Versatility of air power results in it being desirable option for many combat tasks. This produces high demand for already scarce air resources, as it was the case in dividing the support on almost three areas of operations during Operation Aracinovo in 2001. Airmen must be aware that air power is effective only if its efforts are focused on a single objective, and that dilution of efforts can endanger the achievement of objectives.

> *Strategic air attack is wasted if it is dissipated piecemeal in sporadic attacks between which enemy has an opportunity to readjust defenses or recuperate.*
> *General H. H. "Hap" Arnold*

Air power must be prioritized. Demands for air and space forces (because of their flexibility and versatility) will likely overwhelm air commanders in future conflicts unless appropriate priorities are established. Only theater – level commanders of land components can effectively prioritize their individual air and space support requirements to the JFC, and only then can effective priorities for the use of air and space forces flow from an informed dialogue between the JFC and the air component commander.[48] Therefore, all requests for immediate support of land forces must flow through the equivalent of OTG, or should be pre apportioned, and therefore preplanned as combat sorties in an air commander mission task.

Air power must be balanced. Air commander must balance the principles of war and the air power tenets in order to provide synergistic effects and to achieve stated objectives.

Roles, Missions and Functions of Macedonian Air Component

Roles are the broad and enduring purposes for which ARM was established by law. According to the Republic of Macedonia Defense Law (RMDL)[49], Article 23, role of ARM is to organize, prepare, and train in order to perform war fighting, combat and other operations in order to defend the Republic.

Missions are the tasks assigned by the President or Minister of Defense to ARM Commanders. They are articulated through NCSD, WPD, and DSRM. DSRM states that ARM's primary mission is to defend the independence, territorial sovereignty, integrity, and unitary character of the country and to protect the population from external threats. In case of a crisis, the ARM will support the police forces and state institutions and will provide assistance during natural disasters and epidemics, vulnerable technical – technological circumstances and other risks and crises.[50] MK AF, as part of the ARM shares the same missions.

The functions of MK AF are those specific responsibilities that enable the MK AF to fulfill its legally established roles. In order to be able to fulfill its established roles, MK AF has two basic functions, organizational functions of the air component, and operational functions of the air component.

Organizational Functions of Macedonian Air Component

Basic organizational functions of MK AF for effective accomplishment of its mission encompasses functions of formatting of the MK AF, education and training of MK AF personnel, and equipping and maintaining of MK AF.

Formatting of MK AF must facilitate proper use of the principles of war and air power tenets. It should have all available air resources under its command. MK AF HQ should establish liaison with MK Army components, and vice versa, in order to facilitate support missions. MK AF HQ should be formatted and organized so to increase the responsiveness of air assets and to shorten the time for rapid deployment or ground support.

Personnel is the fabric of every organization, it is also true in the case of MK AF. Well – educated and trained professionals, capable of operating advanced equipment, are necessary in order for MK AF to use the advantage of air power advanced technology and organization.

Education of MK AF personnel should underline the air – mindedness perspective in order to develop airmen who understand and appreciate air power. Air – mindedness is not confined to those who fly, but must also be exercised by all those who employ or support any aspect of air power capability[51], to include air – minded logisticians, maintenance and force protection personnel who serve in the air component.

> *Air – mindedness is much harder to convey than the perspectives of soldiers and sailors for several reasons. The viewpoint of the soldier and sailor – bounded by the apparent horizon – is part of everyday life and instinctive understanding; few have ever operated an aircraft or contemplated the problems of aerial warfare; and few popular sources of information reflect an Airman's perspective.*
>
> *General H H 'Hap' Arnold*

Training of MK AF personnel should cover training for missions that will fulfill the requirements articulated in the Defense Law, NCSD, and WPD, guided by principles of war, and air power tenets. Training should emphasize missions where personnel train how to use air power strengths and how to mitigate air power weaknesses and limitations. One of the basic requirements for training is standardization, in terms of standardization of training inside MK AF, and standardization of training with MK Army units. It should stress the use of standardized techniques, tactics, and procedures, charts, and coordinates in order to avoid confusion during execution of tasks. Furthermore, MK AF is the only component that possesses the speed and reach in order to rapidly employ its power, and to rapidly support deployment of ground forces in case of need. Therefore, it is MK AF responsibility to further enable these capabilities by maintaining high combat readiness of its forces.

> *Multi – purpose machines, flown by extremely well – trained pilots employing superior tactics, clearly could defeat larger numbers of specialized fighters flown by less skillful pilots using inferior tactics.[52]*
>
> *"The Israeli Experience"*
> *Brereton Greenhous*

Equipping of MK AF will always depend on the economic strengths of the Republic of Macedonia. Therefore, MK AF must responsibly articulate the equipment it needs in order to match the nation needs. MK AF must keep the technology edge on its side, recognizing that modern technology, as expensive as it seems, is always more effective, and often results in higher savings during the period of its exploitation over maintenance of aged equipment, therefore increasing cost – effectiveness for obtaining modern and new equipment.

> *Economics dictated that, in practice, this approach, which focused on the need for air superiority, required multi – purpose machines and the maximum possible degree of standardization. Bombers were out; so were pure interceptors and specialized ground support or reconnaissance airplanes. Israel could never afford the cost. All these functions were to be performed by one kind of machine, the most recent – and most expensive – acquisition fulfilling the air superiority role as their primary mission, while older, perhaps obsolescent, aircraft concentrated on destroying enemy bases, interdicting his lines of communication, or attacking his forces in the field.[53]*
>
> *"The Israeli Experience"*
> *Brereton Greenhous*

Furthermore, airlift resources, for example, can effectively be used as force multipliers in combat operations, but they can be equally effective in peacetime for wildfire fighting, CASEVAC, or SAR. MK AF should strive to equip itself with flexible equipment, usable for both wartime and peacetime missions.

Maintaining of MK AF encompasses efficient and timely provision of spare parts and failsafe maintenance of equipment. Maintenance should enable quick and safe repairs across all levels of maintenance. Maintenance is key function that provides high operational aircraft rates, thus enabling the air commander freedom and flexibility of operations. Maintenance should develop systems and programs to minimize unnecessary risk and prevent accidental loss. For

example, "Airworthiness program ensures an acceptable level of safety for all military aviation through a stringent system of clearances and regulations."[54]

Operational Functions of Macedonian Air Component

Basic operational functions of MK AF for effective accomplishment of its mission encompasses operational functions of ISR, control of the air, attack, airlift, force protection, and maintenance.

1. Intelligence, Surveillance and Reconnaissance

Intelligence, surveillance and reconnaissance "is the function of systematically observing air, surface, places, persons, or things, by visual, aural, electronic, photographic, or other means. Surveillance is a continuing process, not oriented to a specific target."[55] Further, AFDD1 defines reconnaissance as a function that complements surveillance by obtaining specific information about the activities and resources of an enemy or potential enemy through visual observation or other detection methods; or by securing data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. Reconnaissance generally has a time constraint associated with the tasking. ISR is a key function that provides a timely and valid info in order for air and land commanders to gain situational awareness necessary for planning and conducting an effective operation.

MK AF ISR function is equally important in peacetime, related with early detection of wildfires, and SAR missions.

> *If we lose the war in the air, we lose the war, and we lose it very quickly.*
> *Field Marshal Bernard Law Montgomery*

2. Control of the Air

Control of the air is an air power function that enables defense of the Republic, and is the single air power function that enables defense the airspace of the Republic and that provides

territorial sovereignty across all mediums, including sovereignty of the airspace of the Republic. The DSRM states that it is national responsibility to control and protect the airspace, and that Republic of Macedonia will develop a system for Air Defense (AD) with the required capacities and capabilities for air patrolling and reporting, air defense protection, command and control and the required infrastructure for support of airspace patrolling. The AD system will be compatible with NATO standards and is going to be part of the NATO Integrated AD System (NATINAIDS). Airspace patrolling, as an element of the AD system, will be attained through development of organic capacities or through a bilateral arrangement with NATO or a regional country, according to NATO recommendations.[56] Control of the air provides the ARM commanders with freedom of movement both in the air and on the ground. Furthermore, control of the air can range from total air supremacy to limited air superiority. Force commanders must balance the costs of air superiority compared by the the risks of insufficient control. Therefore, the commander must determine the necessary degree of control of the air required to achieve mission success.[57] Control of the air consists of systems for detection and identification (radars), and interception and destruction (fighter airplanes) of enemy aircraft and missiles.

MK AF has yet to develop system and capabilities necessary to execute the control of the air function. In order for those systems to be more cost – effective, having in mind the Republic's limited economic resources, parts of the system should have a multi role capability. Radar systems can supplement the Macedonian Air Traffic Control coverage and provide integration into NATINEADS. Flexibility of multirole fighter airplanes, as shown below, can fulfill wide variety of tasks across all MK AF key functions.

3. Attack

Attack function of air power enhances the defense capabilities of ARM. Air power, with its almost unlimited flexibility, may be used to attack a wide range of mobile and static targets across multiple theaters of operations.[58] Attack function always supports land forces operations, and can generally be divided to attack on targets that are beyond reach of land forces, and attack on targets in support of land forces operations.

Attack on targets that are beyond the reach of land forces are deep attack and air interdiction. "Deep Attack describes attacks conducted against targets often (but not always) deep in enemy territory and of significant, often strategic, importance. Deep attack is used to disrupt or destroy centers of gravity or other vital target sets such as leadership, command elements, war production resources, fielded forces, or key supporting infrastructure."[59]

Air interdiction targets enemy reinforcements, and supplies that are en route towards the combat area before they can be effectively deployed and used against friendly forces. Air interdiction effectively denies freedom of movement to the enemy. AFDD1 states that the air component commander executes air interdiction to provide effects for friendly forces executing a land scheme of maneuver.[60]

Attack on targets in support of land forces operations is close air support (CAS). CAS provides direct support to friendly land forces in contact with the enemy. CAS requires detailed integration of air fire and movement with fires and movements of the supported land forces. Integration is normally realized through Tactical Air Control Party (TACP) or Forward Air Controller (FAC) embedded in the supported land forces. "CAS can provide a tremendous tactical advantage when supporting ground forces... it can halt attacks, help create breakthroughs, cover retreats, and guard flanks."[61]

MK AF attack function encompasses Irregular Warfare operations, with high demand for precision ammunition delivery capabilities in order to eliminate collateral damage, and Non – Lethal attack, like information operations, "primarily non-kinetic actions taken to influence, affect or defend information, systems and decision-making. They must be integrated into air (and space) operations in the same manner as more traditional capabilities to create effects across the entire battle space."[62]

MK AF base for executing attack function are attack helicopters, capable of operating in both day and night and equipped with electronic optical package, thus improving their target detection capabilities. However, results of recent attack helicopter operations in Afghanistan and Iraq presents present evidence that attack helicopter units are vulnerable when employed without proper support. For example, during opening stages of Operation Anaconda, in March 2002, AH – 64 Apache attack helicopters were employed to provide CAS for US troops fighting al Qaeda. Excerpts from Benjamin S. Lambeth's "Air Power Against Terror" clearly show some of the vulnerabilities. "On returning to the now – embattled valley, the Apache aircrews found themselves unable to provide the needed support because of the high density of enemy fire coming at them from multiple directions. In the end, all seven of the Apaches that had initially been committed to the fight were hit by al Qaeda fire... Once fixed – wing air power entered the battle flow in full force, however, the execution of specific requested target – servicing mission was almost always more than sufficiently responsive, indicating that they would have been more than sufficiently responsive from the start had a more timely engagement of the air component been enlisted by Anaconda's planners."[63] Another grim example of attack helicopter weaknesses came during Operation Cobra II, in March 2003, during a night deep attack on Medina Division positions by 11th Attack Helicopter Regiment. "Having studied U.S. tactics, the Iraqis knew that

the Americans always worried about the possibility of flying into telephone or electrical wires and would always be at pains to fly over them. So the Iraqis concentrated their firepower at locations where the American helicopters would be flying over suspended wires... Although the Apaches were blacked out, they were silhouettes against the clouds by the lights of the Iraqi towns."[64] Eventually, planned deep attack was aborted with a result of one Apache shot down, seven other heavy damaged and a count of more than 300 hits by enemy air defense and small arms fire. The after – action report noted that "in reality the most deadly system for AH – 64 is not the air defense system but an AK – 47."[65] Further, the after – action report identified that one of the confluence of errors was that there were no close air support aircraft ready and on call, in order to suppress the enemy fire. Even Israeli Air Force limited the use of their attack helicopters during the 2006 Israeli – Hezbollah war. According to William Arkin, their aircraft conducted over 5000 strike missions, while attack helicopters conducted only around 700 missions involving delivery of ordnance.[66] In his report, Nicholas Blanford states that, "IDF forces were also fighting with limited air support. The IAF's AH-64 Apache and AH-1 Cobra helicopter gunships played a limited role in the conflict apparently due to the potential threat of IR's anti-aircraft capabilities. Israel has long believed that the IR has acquired SA-18 Grail surface-to-air missiles (SAMs), although there are no reliable reports that any were fired in south Lebanon. The SA-18 poses minimal threat to fighter – bombers, but is a far greater menace to low-flying helicopters. Instead, the IAF made greater use of killer UAVs fitted with Hellfire or Spike anti-tank missiles."[67] The same report states that CH – 53 transport helicopter was shot down in the vicinity of Yater village by an IR anti – tank missile, killing all five crew members.[68]

BASD states that because attack helicopters in general... have not always proved to be as flexible as fixed – wing aircraft in conducting deep operations, air component commanders

should be supported where there are opportunities to attack lucrative conventional target sets.[69] Both above examples and BASD demonstrate that MK AF must develop attack fixed – wing capabilities and to integrate both fixed and rotary wing attack operations. Multirole airplanes, with their flexibility, can prove invaluable for enabling the ISR, control of the air, and attack functions.

4. Airlift

Airlift is the key air power function that encompasses movement of troops, people, and material through the air. Airlift is limited in payload capacities, but it is often the only way of delivering the needed capabilities. Republic of Macedonia geographic characteristics with prevailing mountainous terrain and weak transport infrastructure underline the importance of airlift in both wartime and peacetime missions. Airlift missions encompass troops, passenger and cargo movement, air assault employment and sustainment, aero medical evacuation (CASEVAC / MEDEVAC), noncombatant evacuation, and special operations support. "Support helicopters are the lynch pins of tactical mobility. Typically operating at lower heights and speeds than fixed – wing aircraft, they enable rapid tactical movement of personnel and materiel over difficult terrain. They are the fundamental enablers of ground maneuver, adding speed and surprise and allowing forces to leapfrog difficult terrain and bypass ground threats. Support helicopters are invariably in great demand and short supply.[70] Furthermore, MK AF airlift function encompasses wildfire fighting, aero medical transport, humanitarian relief of remote and cutoff populated areas, and counter drug and counter trafficking operations in support of MK Police.

MK AF base for executing airlift function are medium transport helicopters. They provide satisfying in – theater airlift capabilities, but they have limited payload and range

capabilities. On the other side, DSRM states that for long – term contributions to the overall spectrum of NATO – led operations, the ARM will develop and maintain one deployable Medium Infantry Battalion (MIB) capable of high intensity combat actions... that will be capable of deployment and independent execution of combat actions in the overall spectrum of NATO – led missions and operations.[71] In order to support the deployment and sustainability of the declared MIB, MK AF should consider development of at least basic inter – theater airlift capabilities.

5. *Force Protection*

Well – trained and professional personnel and advanced equipment are key enablers for effective air power. "Because aircrafts are scarce, expensive, and fragile, and operating bases are potentially vulnerable..., a specialist, air minded FP capability is required to mitigate the strategic consequences of the loss of personnel, air freedom of maneuver, or of a key air platform."[72] Every air force, and particularly small sized air force like MK AF, is sensitive to loss of personnel or equipment. Therefore, force protection is another key operational function of the MK AF. Force protection encompasses protection of operating bases, protection of deployed personnel and equipment, recovery of captured, missing, or isolated personnel. MK AF should develop Combat Search and Rescue (CSAR) capabilities and procedures in order to enable effective recovery efforts. Additionally, those capabilities should include non – combat Search and Rescue (SAR). To facilitate those tasks, MK AF personnel that are at high risk of isolation should complete Survival, Evasion, Resistance, and Escape (SERE) training. Being a "key element in sustaining the morale, cohesion, and fighting capability of friendly forces, it preserves critical combat resources and denies the enemy potential sources of intelligence,"[73] MK AF

should provide CSAR across the range of military operations and for all ARM personnel.

Finally, through programs like "The Flight Safety program that aims to prevent accidental loss of

aviation resources by continuous monitoring of hazards and the investigation and analysis of all

aviation safety occurrences,"[74] force protection can additionally mitigate risks to MK AF

personnel.

6. Maintenance

The maintenance function ensures allocated equipment is airworthy, safe, full mission

capable (FMC), and properly configured to meet mission needs. Maintenance resources make up

the essential capabilities required to generate sorties, and sustain mission systems, components

and equipment. Maintenance must follow valid manufacturer maintenance publications in order

to provide safe, quality, and timely returning of the aircraft to FMC status. Maintenance is more

effectual if carried out on a preplanned schedule, thus increasing the efficacy of use of personnel,

facilities, and equipment. Maintenance should develop systems and programs to minimize

unnecessary risk and prevent accidental loss. For example, "Airworthiness program ensures an

acceptable level of safety for all military aviation through a stringent system of clearances and

regulations."[75]

Notes

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[31] I. B. Holley, Jr, *"Concepts, Doctrines, Principles: Are You Sure You Understand These Terms?"* Air University Review, July-August 1984, 90.

[32] Canadian Forces Aerospace Doctrine, 2006, p. 3.

[33] Ibid, p. 3

[34] Ibid, p. 91

[35] Air Force Basic Doctrine, Air Force Doctrine Document 1, 17 November 2003, p. 7.

[36] National Concept for Security and Defense of the Republic of Macedonia, 11Jun 2003, available online at: http://80.77.144.32/2003/16865E922022214696AEE79EFEE248F6.pdf, or http://www.vlada.mk/files/Vladina_koncepcija_za_bezbednost.pdf .

[37] Air Force Basic Doctrine, Air Force Doctrine Document 1, 17 November 2003, p. 11.

[38] Available online at: http://merln.ndu.edu/whitepapers/Macedonia-2005.pdf

[39] Republic of Macedonia White Pages on Defense, Ministry of Defense, October 2005, p. 18.

[40] http://www.morm.gov.mk/morm/mk/pr/news/mo-konjanovski-mu-ja-predade-na-pretsedatelot-ivanov-strategijata-za-odbrana-na-makedonija.html

[41] Defense Strategy of the Republic of Macedonia, 1 March 2010, p. 2.

[42] British Air and Space Doctrine, p. 16.

[43] Ibid, p. 17.

[44] Ibid, p. 18.

[45] Ibid, p. 22.

[46] Air Force Basic Doctrine, Air Force Doctrine Document 1, 17 November 2003, p. 19.

[47] British Air and Space Doctrine, p. 26 – 28.

[48] Air Force Basic Doctrine, Air Force Doctrine Document 1, 17 November 2003, p. 32.

[49] Official Gazette of the Republic of Macedonia No. 42, 1 June 2001, available online at: http://80.77.144.32/2001/00D361DBD830994C8FDDC7A4B4E6282A.pdf

[50] Defense Strategy of the Republic of Macedonia, 1 March 2010, p. 5.

[51] British Air and Space Doctrine, p. 26.

[52] Cooling, B. Franklin. *Case Studies in the Achievement of Air Superiority*. Washington, D.C.: Center for Air Force History, 1994, p. 573.

[53] Ibid, p. 567.

[54] Canadian Forces Aerospace Doctrine, 2006, p. 47.

[55] Air Force Basic Doctrine, Air Force Doctrine Document 1, 17 November 2003, p. 55.

[56] Defense Strategy of the Republic of Macedonia, 1 March 2010, p. 8.

[57] Canadian Forces Aerospace Doctrine, 2006, p. 40.

[58] British Air and Space Doctrine, p. 50.

[59] British Air and Space Doctrine, p. 54.

[60] Air Force Basic Doctrine, Air Force Doctrine Document 1, 17 November 2003, p. 44.

[61] Ibid, p. 45.

[62] British Air and Space Doctrine, p. 56.

[63] Lambeth, Benjamin S. *Air Power against Terror: America's Conduct of Operation Enduring Freedom*. Santa Monica, CA: RAND, 2005, p. 181, 211.

[64] Gordon, Michael R., and Bernard E. Trainor. *Cobra II: the inside Story of the Invasion and Occupation of Iraq*. New York: Pantheon, 2006, p. 270.

[65] Ibid, p. 281.

[66] Arkin, William M. *Divining Victory: Airpower in the 2006 Israel-Hezbollah War*. Maxwell Air Force Base, AL: Air UP, 2007, 63.

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[67] http://search.janes.com/Search/documentView.do?docId=/content1/janesdata/mags/jir/history/jir2006/jir10050.htm@current&pageSelected=allJanes&keyword=Deconstructing%20Hizbullah%27s%20surprise%20military%20prowess&backPath=http://search.janes.com/Search&Prod_Name=JIR&

[68] Ibid.

[69] British Air and Space Doctrine, p. 52.

[70] Ibid, p. 44.

[71] Defense Strategy of the Republic of Macedonia, 1 March 2010, p. 9.

[72] British Air and Space Doctrine, p. 22.

[73] Air Force Basic Doctrine, Air Force Doctrine Document 1, 17 November 2003, p. 57.

[74] Canadian Forces Aerospace Doctrine, 2006, p. 47.

[75] Canadian Forces Aerospace Doctrine, 2006, p. 47.

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